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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/705,395	11/02/2000	Jonathan S. Turner	52186	3173
26327	7590	06/01/2005	EXAMINER	
THE LAW OFFICE OF KIRK D. WILLIAMS 1234 S. OGDEN ST. DENVER, CO 80210			JAGANNATHAN, MELANIE	
			ART UNIT	PAPER NUMBER
			2666	

DATE MAILED: 06/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/705,395

Applicant(s)

TURNER ET AL.

Examiner

Melanie Jagannathan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,9,10,12-15 and 25-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,9,10,12-15 and 25-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 November 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/25/2005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the claimed limitations of claim 36 regarding means for inserting an entry into one of plurality of timing wheels, means for removing the entry from one of the plurality of timing wheels at an appropriate time corresponding to position of entry in plurality of timing wheels, means for placing the entry into transmit list in response to removing the entry from one of plurality of timing wheels, means for removing entry from transmit list, means for sending information corresponding to entry in response to entry being removed from transmit list and means for determining a next target time and re-inserting the entry removed from transmit list into plurality of timing wheels based on next target time must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

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application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: original disclosure does not provide support for the claimed limitations of claim 36 regarding means for inserting an entry into one of plurality of timing wheels, means for removing the entry from one of the plurality of timing wheels at an appropriate time corresponding to position of entry in plurality of timing wheels, means for placing the entry into transmit list in response to removing the entry from one of plurality of timing wheels, means for removing entry from transmit list, means for sending information corresponding to entry in response to entry being removed from transmit list and means for determining a next target time and re-inserting the entry removed from transmit list into plurality of timing wheels based on next target time.

Claim Objections

3. Claims 35, 41 are objected to because of the following informalities: Examiner kindly requests "irregardless" be changed to "regardless". Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

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The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 36-41 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The original disclosure does not provide support, without undue experimentation by Examiner, for the claimed subject matter of means for inserting an entry into one of plurality of timing wheels, means for removing the entry from one of the plurality of timing wheels at an appropriate time corresponding to position of entry in plurality of timing wheels, means for placing the entry into transmit list in response to removing the entry from one of plurality of timing wheels, means for removing entry from transmit list, means for sending information corresponding to entry in response to entry being removed from transmit list and means for determining a next target time and re-inserting the entry removed from transmit list into plurality of timing wheels based on next target time.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 9-10, 25-27, 36-41 are rejected under 35 U.S.C. 102(e) as being anticipated by Delp et al. US 6,477,168.

Regarding claims 1, 10, 26, the claimed inserting an entry into one a plurality of timing wheels and removing entry from one of plurality of timing wheels at an appropriate time corresponding to a position of entry in the plurality of timing wheels is disclosed by fast timing wheel used for smaller ranges of time (Figure 4, element 400) and slow timing wheel (element 402) with timing wheel comprising an array of pointers to the data structure logical channel descriptor (Figure 2A, element 206) which includes next LCD pointer for linking LCDs together at a timing wheel slot and pointers to a chain of cells/packets to be transmitted. Cell/frame scheduler scans timing wheel and if find LCD for connection on timing wheel within time range for that timing wheel, then cell/frame scheduler sends out cell/frame and computes next time this LCD has to be enqueued on timing wheel (elements 400 or 402) which teaches idea of removing entry from timing wheel at appropriate time. See column 5, lines 23-67, column 6, lines 4-66. The claimed placing entry into transmit list in response to removing entry from timing wheel is disclosed by cell/frame scheduler scanning enqueued LCD on timing wheel which contains pointer for cell/frame scheduler to locate entry in chain of LCDs (transmit list). See column Figure 3 and column 5, lines 23-44. The claimed removing entry from transmit list and in response to entry being removed from list, sending information corresponding to entry is disclosed by cell/frame scheduler passes LCD to transmission preparation logic (Figure 2, element 208) for cell/frame transmission corresponding to that LCD. The claimed determining a next target time and re-inserting the entry removed from transmit list into plurality of timing wheels based on next target time is disclosed by next target transmission time calculated for a

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frame/cell, selecting a timing wheel (fast or slow) and pointer address written in for that LCD.

See column 6, lines 4-44.

Regarding claim 9, the claimed two timing wheels having different time granularities is disclosed by fast and slow timing wheels (Figure 4, element 400, 402) and column 5, lines 45-53.

Regarding claim 25, the claimed transmit list includes at least one other entry removed from a particular one of the plurality of timing wheels when removing the entry from transmit list is performed is disclosed by Delp et al. discloses fast and slow timing wheel where entries in timing wheels are removed according to its own range of time so as transmission of cell is performed at transmission preparation logic (element 208) causing removal of entry from chain of LCDs, another entry for connection could be removed from other timing wheel for transmission. See column 5, lines 23-67, column 6, lines 20-44.

Regarding claim 27, the claimed selecting one of plurality of timing wheels prior to inserting entry based on wheel having finest granularity and whose range includes target time of entry regardless of rate corresponding to entry is disclosed by fast and slow timing wheels (Figure 4, elements 400, 402). Fast timing wheel used for smaller ranges of time, slow timing wheel used to larger and some LCDs with target transmission time greater than time for slow timing wheel than sent to fast timing wheel. See Figure 4 and column 5, lines 45-52.

Regarding claims 36, 38, 40, the claimed means for inserting an entry into one a plurality of timing wheels and means for removing entry from one of plurality of timing wheels at an appropriate time corresponding to a position of entry in the plurality of timing wheels is disclosed by fast timing wheel used for smaller ranges of time (Figure 4, element 400) and slow timing wheel (element 402) with timing wheel comprising an array of pointers to the data

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structure logical channel descriptor (Figure 2A, element 206) which includes next LCD pointer for linking LCDs together at a timing wheel slot and pointers to a chain of cells/packets to be transmitted. Cell/frame scheduler scans timing wheel and if find LCD for connection on timing wheel within time range for that timing wheel, then cell/frame scheduler sends out cell/frame and computes next time this LCD has to be enqueued on timing wheel (elements 400 or 402) which teaches idea of removing entry from timing wheel at appropriate time. See column 5, lines 23-67, column 6, lines 4-66. The claimed means for placing entry into transmit list in response to removing entry from timing wheel is disclosed by cell/frame scheduler scanning enqueued LCD on timing wheel which contains pointer for cell/frame scheduler to locate entry in chain of LCDs (transmit list). See column Figure 3 and column 5, lines 23-44. The claimed means for removing entry from transmit list and in response to entry being removed from list, sending information corresponding to entry is disclosed by cell/frame scheduler passes LCD to transmission preparation logic (Figure 2, element 208) for cell/frame transmission corresponding to that LCD. The claimed means for determining a next target time and re-inserting the entry removed from transmit list into plurality of timing wheels based on next target time is disclosed by next target transmission time calculated for a frame/cell, selecting a timing wheel (fast or slow) and pointer address written in for that LCD. See column 6, lines 4-44.

Regarding claim 37, the claimed two timing wheels having different time granularities is disclosed by fast and slow timing wheels (Figure 4, element 400, 402) and column 5, lines 45-53.

Regarding claim 39, the claimed transmit list includes at least one other entry removed from a particular one of the plurality of timing wheels when removing the entry from transmit list is performed is disclosed by Delp et al. discloses fast and slow timing wheel where entries in

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timing wheels are removed according to its own range of time so as transmission of cell is performed at transmission preparation logic (element 208) causing removal of entry from chain of LCDs, another entry for connection could be removed from other timing wheel for transmission. See column 5, lines 23-67, column 6, lines 20-44.

Regarding claim 41, the claimed selecting one of plurality of timing wheels prior to inserting entry based on wheel having finest granularity and whose range includes target time of entry regardless of rate corresponding to entry is disclosed by fast and slow timing wheels (Figure 4, elements 400, 402). Fast timing wheel used for smaller ranges of time, slow timing wheel used to larger and some LCDs with target transmission time greater than time for slow timing wheel than sent to fast timing wheel. See Figure 4 and column 5, lines 45-52.

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 12-15, 28-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Byrn et al. US 5,533,020.

Regarding claims 12, 14, the claimed maintaining a plurality of timing wheels is disclosed by cell scheduling unit comprising banks of circular queues where each bank has timing wheels. See column 4, lines 33-40. The claimed inserting an entry into one wheel and removing entry at an appropriate time corresponding to position of entry in wheel and sending information corresponding to entry is disclosed by placement of queue Ids in to timing wheel and

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wheel selected according to priority and queue ID of wheel current position of wheel selected is passed to memory management unit which pulls the cell from the head of queue out of memory and updates queue state and cell is sent out for transmission and QID is passed to virtual connection activator to decrement appropriate VC queue length, update VC information table and initiate a new cell schedule. Regarding claims 16, 18, the claimed one or more transmit lists disclosed by VC table in VCA where QIDs get passed for cell transmission. See column 4, lines 60-67, column 5, lines 1-12, 41-59.

Regarding claim 13, the claimed first pacing rate identifier inserted into transmit list before second pacing rate identifier, second pacing rate identifier removed before first pacing rate identifier is disclosed by wheel having priorities associated with them so some packets are sent according to priority level and bound is placed on cells being transmitted from a single priority queue to allow for lower priority cells to be sent. See column 4, lines 33-67 and column 5.

Regarding claim 15, the first wheel having a finer timing granularity than second and items are removed from second transmit list only if first is empty is disclosed by priority values and wheel rates assigned and each wheel corresponding to a priority p and wheel rate r . See column 4, lines 33-59.

Regarding claim 28-29, the claimed each timing wheel used to schedule information of same priority level is disclosed by priority values and wheel rates assigned and each wheel corresponding to a priority p and wheel rate r . See column 4, lines 33-59.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 30-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Delp et al.

Claims 30-35 mirror claims 1, 9-10 and rejection for these claims follows same rationale as above for claims 1, 9-10. However, Delp et al. does not disclose one or more computer-readable media containing computer-executable steps for pacing flow of information from device. At the time the invention was made it would have been obvious to translate steps into code to pace flow of information. One of ordinary skill in the art would be motivated to do this for the efficiency due to an automated system.

Response to Arguments

12. Applicant's arguments with respect to claims 1, 9, 10 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments with respect to claims 12-15 have been fully considered but they are not persuasive. Examiner appreciates detailed description of prior art.

Regarding claims 12, 14, Applicant argues in Bryn et al.'s VC table in VCA where QIDs get passed has nothing to do with transmission rather it's used for scheduling. Examiner contends Bryn et al. discloses when a new cell arrives, the VCI is passed to the VCA and the VCA uses the VC table (Figure 3) for VCI and QID information for transmission. See column 5, lines 60-67, column 6, lines 1-11.

Applicant argues reference Bryn et al does not disclose limitations of amended claim 1. Examiner submits new grounds of rejection directed at amended limitations as well as the original limitations of claim 1.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie Jagannathan whose telephone number is 571-272-3163. The examiner can normally be reached on Monday-Friday from 8:00 a.m.-4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MJ



FRANK DUONG
PRIMARY EXAMINER